

CLAIMS

WE CLAIM:

1. A multimedia processing system comprising:
 - a media processor component configured to process received media data;
 - a media session component coupled to the media processor component, the media session component configured to determine a timeline for events to occur for performing media processing; and
 - a topology loader component coupled to the media session component, the topology loader component configured to load a topology that describes a flow for the received media data to enable processing via an extensible symbolic abstraction of media objects, the topology loader configured to ensure that events described in the topology occur.
2. The multimedia processing system of claim 1, further comprising:
 - a media sink component coupled to the media processor component, the media sink component configured to determine a media stream for output from the multimedia processing system; and
 - a media source component coupled to the media processor component, the media source component configured to supply media data for processing.
3. The multimedia processing system of claim 1 wherein the topology is configured to symbolically provide data flow information, the topology independent of maintaining a streaming state of control information.
4. The multimedia processing system of claim 3 wherein the topology being independent of maintaining the stream state of control information enables dynamic adding and removing multimedia components from the topology.
5. The multimedia processing system of claim 1 wherein the topology is the extensible symbolic abstraction of media objects, the media objects independent of an instantiation requirement.

6. The multimedia processing system of claim 1 wherein the topology includes a segment topology node configured to provide an encapsulated topology that can be inserted and deleted from a topology, the segment topology node including one or more inputs and one or more outputs and one or more nodes.
7. The multimedia processing system of claim 1 wherein the topology includes a tee node configured to provide a primary and secondary output stream therefrom, the tee node configured to respond to logic dictating a discard ability of data output from one or more of the primary and the secondary output stream.
8. The multimedia processing system of claim 1 wherein the topology includes a demultiplexer node configured to split media into different types of media from a combined input.
9. The multimedia processing system of claim 8 wherein the combined input is an interleaved audio and video input, the demultiplexer node configured to split the audio from the video and provide at least an audio output and a video output.
10. The multimedia processing system of claim 1 wherein the topology can be fully specified and independent of instantiated media objects.
11. The multimedia processing system of claim 10 wherein the topology being fully specified and independent of instantiated media objects enables the topology to remain an abstraction and enables the topology to be shared and instantiated multiple times.
12. The multimedia processing system of claim 1 wherein the topology is a fully loaded topology wherein connections between a plurality of nodes in the topology are guaranteed, each media type required by the topology is negotiated and each media object in the topology is instantiated.
13. The multimedia processing system of claim 1 wherein the media objects are instantiated when the topology is resolved.

14. The multimedia processing system of claim 1 wherein the topology includes a plurality of nodes, each node including one or more of the media objects, each of the plurality of nodes is identifiable via a unique identifier.
15. The multimedia processing system of claim 14 wherein the unique identifier enables sharing and reusing the nodes in a plurality of topologies.
16. A method for creating a data structure that defines a topology that identifies a flow of multimedia data through a collection of one or more media objects forming one or more nodes, the method comprising:
- identifying a connection between one or more nodes; and
 - abstracting the connection between the nodes to enable the topology to be fully or partially specified independent of instantiation of the media objects.
17. The method of claim 16 wherein the abstracting enables a delay between negotiating one or more media types for the topology and loading the media objects.
18. The method of claim 16 wherein the topology includes a segment topology node configured to provide an encapsulated topology that can be inserted and deleted from the topology, the segment topology node including one or more inputs and one or more outputs.
19. The method of claim 16 wherein the topology includes a tee node configured to provide a primary and secondary output stream therefrom, the tee node configured to respond to logic dictating a discardability of data output from one or more of the primary and the secondary output stream.
20. The method of claim 16 wherein the topology includes a demultiplexer node configured to split media into different types of media from a combined input.
21. The method of claim 20 wherein the combined input is an interleaved audio and video input, the demultiplexer node configured to split the audio from the video and provide at least an audio output and a video output.

22. The method of claim 16 wherein each node is identifiable via a unique identifier.
23. The method of claim 16 wherein the topology is operable via one or more user interfaces allowing a user to pre-specify which media object to use prior to the topology being resolved or used by a media processor.
24. The method of claim 23 wherein the user interface enables a user to set static and dynamic properties for the media objects via a timeline source.
25. The method of claim 23 wherein the user interface enables a user to set properties on a proxy object, the proxy object being created, loaded with properties, and configured to follow through the topology and processed according to properties set on the media object associated with identified frames.
26. The method of claim 16 wherein the topology is identified by one or more topology descriptors enabling interaction between a user and the topology.
27. The method of claim 26 wherein the topology descriptor identifies a collection of topology stream descriptors, each topology stream descriptor identifying a media stream.
28. A computer-readable medium having computer-executable instructions for creating a data structure that defines a topology that identifies a flow of multimedia data through a collection of one or more media objects forming one or more nodes, the computer-executable instructions performing acts comprising:
- identifying a connection between one or more nodes; and
 - abstracting the connection between the nodes to enable the topology to be fully or partially specified independent of instantiation of the media objects.
29. The computer-readable medium of claim 28 wherein the abstracting enables a delay between negotiating one or more media types for the topology and loading the media objects.
30. The computer-readable medium of claim 28 wherein the topology includes a segment topology node configured to provide an encapsulated topology that can be

inserted and deleted from the topology, the segment topology node including one or more inputs and one or more outputs.

31. The computer-readable medium of claim 28 wherein the topology includes a tee node configured to provide a primary and secondary output stream therefrom, the tee node configured to respond to logic dictating a discardability of data output from one or more of the primary and the secondary output stream.

32. The computer-readable medium of claim 28 wherein the topology includes a demultiplexer node configured to split media into different types of media from a combined input.

33. The computer-readable medium of claim 28 wherein the combined input is an interleaved audio and video input, the demultiplexer node configured to split the audio from the video and provide at least an audio output and a video output.

34. The computer-readable medium of claim 28 wherein each node is identifiable via a unique identifier.

35. The computer-readable medium of claim 28 wherein the topology is operable via one or more user interfaces allowing a user to pre-specify which media object to use prior to the topology being resolved or used by a media processor.